

# 2

## **Lesson 2 HTML Tags**

### **Lesson Topics**

- ▶ What are HTML Tags?
- ▶ Document Section Tags
- ▶ Text Formatting Tags
- ▶ Layout Tags
- ▶ Logical Tags
- ▶ Lists
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## What are HTML Tags?

HTML *tags*, sometimes referred to as *markup tags*, are the coded instructions that accompany the plain text of an HTML document. The plain text of the HTML document (often called the “content” of the document)—in conjunction with the tags of the document—is interpreted by a Web browser and displayed as a Web page. Tags are the most basic elements necessary to create HTML documents for publication via the Web.



For the purposes of this course, “HTML document” is the term used to describe the ASCII text document when it is being edited in a text editor or HTML editor. The HTML document is referred to as a “Web page” when it is interpreted by and displayed in a Web browser.

### Tag Syntax

HTML tags have a precise syntax, as shown in Figure 2-1. It is essential to use the correct syntax when scripting HTML documents to avoid erroneous interpretation of HTML documents and incorrect display of Web pages by a Web browser. A tag is defined by:

- a left wicket;
- a tag element;
- an optional set of tag attributes;
- a right wicket.

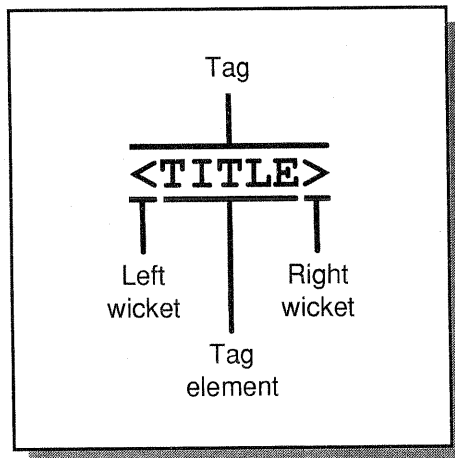


Figure 2-1: HTML tag syntax

## Opening & Closing Tags

A tag is enclosed in a pair of angle brackets (the mathematical “less than” and “greater than” signs), commonly referred to by HTML authors as *wickets*. An opening tag begins with the left wicket (<) followed immediately by the tag element, and then the right wicket (>).

Closing tags differ from opening tags with the addition of a forward slash (/) that follows the opening wicket and precedes the tag element, as shown in Figure 2-2. The forward slash functions as a switch,<sup>8</sup> identifying the closing tag and differentiating it from the opening tag.

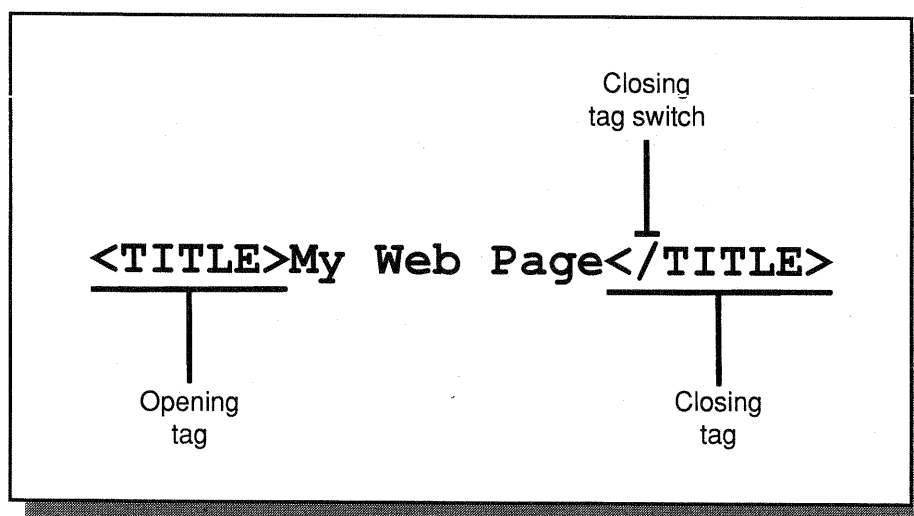


Figure 2-2: Opening and closing tag syntax

## Empty vs. Non-empty Tags

All of the tags presented in this lesson were examples of *non-empty tags*. Non-empty tags are comprised of an opening tag and a closing tag, separated by the effected text. No spaces should occur between the opening tag and the first word of the affected text or the last word of the affected text and the closing tag. Conversely, *empty tags* do not occur in tag sets; instead, they stand alone as solitary elements.



The majority of the HTML tag family is comprised of non-empty tags.

<sup>8</sup> A switch is sometimes referred to as a *delimiter*.

## Document Section Tags

The two major HTML document sections, the Head and Body, are created with the `<HEAD>` and `<BODY>` tags, respectively. Both `<HEAD>` and `<BODY>` are non-empty tag sets.

The Head section's primary function is to house the document Title tag, `<TITLE>`. `<TITLE>` must be nested within the opening and closing `<HEAD>` tags of each HTML document. The text between the opening and closing Title tags appears on the title bar of the client browser when the HTML document is interpreted and displayed.

Table 2-1 identifies and suggests usage of HTML tags that are placed outside of the Body section and that divide an HTML document into sections.

Tag	Elements Nested Within	Comment
<code>&lt;HTML&gt;</code>	Entire document contents	Defines an HTML document
<code>&lt;HEAD&gt;</code>	Title tag	All <code>&lt;META&gt;</code> information is placed in the <code>&lt;HEAD&gt;</code> area
<code>&lt;BODY&gt;</code>	Non-head document contents	All visible page data is placed in the <code>&lt;BODY&gt;</code> area
<code>&lt;TITLE&gt;</code>	Text to be displayed on browser title bar	Avoid ALL CAPS titles

**Table 2-1: HTML tags that divide a page into sections**

## Head, Title, and Body Tags

All HTML documents begin with the HTML document definition tag, `<HTML>`, followed by the Head tag, `<HEAD>`. The Title tag, `<TITLE>`, is nested within the opening and closing `<HEAD>` tags. The `<TITLE>` tag determines the text that is displayed in the title bar of any browser that downloads and interprets the HTML document. After the closing Head tag, `</HEAD>`, the opening `<BODY>` tag is inserted.<sup>9</sup>



The latest versions of the Netscape Navigator and MSIE browsers do not require the `<BODY>` tag. However, in order to employ advanced Web page effects—such as background patterns, background colors, and text colors—the `<BODY>` tag must be included in the HTML document.

<sup>9</sup> The last two tags of any HTML document are the closing Body tag, `</BODY>`, and the closing HTML tag, `</HTML>`.

### Exercise 2-1: Creating a New HTML Document

In this exercise, you will open an existing ASCII text document containing substantial content, but no HTML tags or attributes. Throughout the rest of this course, you will add tags, attributes, and minor content to this document in order to create a richly formatted Web page.

1. Launch a text editor (Microsoft Notepad is suggested).<sup>10</sup>
2. Open the file WEBPAGE.HTM from the HTML-2 folder on your Desktop.
3. With your cursor at the beginning of the document, type the following script:

```
<HTML>
```

```
<HEAD>
```

```
<TITLE><your name's> Practice Web Page</TITLE>
```

```
</HEAD>
```

```
<BODY>
```

4. Save the HTML document (**File ► Save** in Notepad).
5. Launch your Web browser.
6. Open the HTML document named WEBPAGE.HTM in your Web browser.
  - In Microsoft IE 5.0x, select **File ► Open ► Browse**, locate WEBPAGE.HTM in the HTML-1 folder on your Desktop and double-click it.
  - In Netscape Navigator/Communicator 4.0x, select **File ► Open Page ► Choose File**, locate WEBPAGE.HTM in the HTML-1 folder and double-click it.

<sup>10</sup> The Notepad executable file is NOTEPAD.EXE and is located in C:\WINDOWS\NOTEPAD.EXE in Windows 95/98/2000 and in C:\WINNT\NOTEPAD.EXE in Windows NT 4.0.

7. Compare the title bar that is displayed in your Web browser with that displayed in Figure 2-3. If they are not identical, check your HTML script against the script in Step 3.

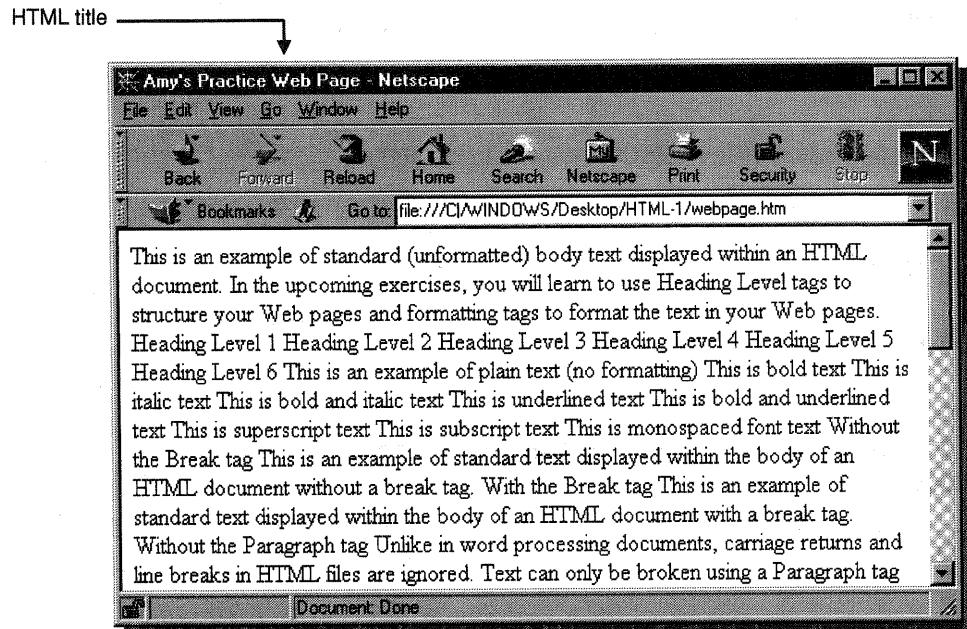


Figure 2-3: HTML title displayed in browser title bar



The text between the opening and closing Title tags (“<your name’s> Practice Web Page”) is case sensitive, and will be displayed *exactly* as it is typed. However, the browser ignores the case of the tags themselves. <TITLE> and <title> and <Title> are all equivalent with respect to how this, or *any* tag element, will be interpreted by *any* browser.

It is recommended, however, that you use ALL CAPS when scripting tags because it increases the ease with which tags and non-tag HTML document content can be differentiated. Using ALL CAPS tags also makes it easier for you or another HTML scripter to edit your documents later (this is called script “readability”).

## Body Text

Body text is the non-formatted text of HTML documents that is displayed as standard text in Web pages. As previously mentioned, without the addition of text formatting tags, body text appears in Web pages as a continuous paragraph. Without layout tags, the only breaks in text occur between words and at the line wrap width (right margin) of the browser.

### Exercise 2-2: Entering Standard Body Text

1. Switch applications to your text editor. Open WEBPAGE.HTM, if necessary.
2. Type the portion of the following script that appears in bold:

This is an example of standard (unformatted) body text displayed within an HTML document. In the upcoming exercises, you will learn to use Heading Level tags to structure your Web pages and formatting tags to format the text in your Web pages. **Standard body text can be added to an HTML document simply by typing; no special tags are required. It's as easy as typing text into a word processing document.**

3. Save the HTML document (<ALT + F, S>).
4. Switch applications to your Web browser (<ALT + TAB>).
5. Reload the Web page (<CTRL + R> in both IE 5 and Navigator/Communicator).
6. Compare the screen that is displayed in your Web browser with Figure 2-4. They should appear nearly identical. If they are not identical, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

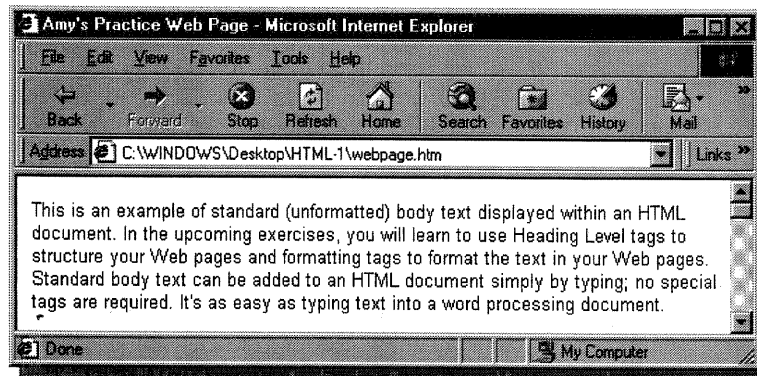


Figure 2-4: HTML default body text

## Formatting of Tags

When downloading and interpreting HTML documents, a browser first recognizes a tag by its wickets. This is a process known as *parsing*. The browser displays the information between the opening and closing tags according to the format specified by the tag.

Although formatted differently, layouts 1, 2, and 3 below result in an *identical* interpretation and display in *any* browser.

### Layout 1

```
<HEAD>
<TITLE>Amy's Practice Web Page</TITLE>
</HEAD>
```

### Layout 2

```
<HEAD>
<TITLE>
Amy's Practice Web Page
</TITLE></HEAD>
```

### Layout 3

```
<HEAD><TITLE>Amy's Practice Web Page</TITLE></HEAD>
```



Clean formatting of tags is important, not to ensure proper interpretation of HTML script by the browser, but to make future editing of HTML script easier for the author(s).



White space *within* individual tags and between opening and closing tags can confuse a browser and result in misinterpreted script. Avoid white space within a tag unless required (when using tag attributes).



## Text Formatting Tags

HTML has a variety of tags available for changing the formatting of text blocks. The most fundamental style tags include those that bold, italicize, and underline text. Also available are tags for changing default proportional text to a monospaced (fixed) font and tags for creating superscript and subscript effects.

Multiple formatting tags can be applied to a single block of text. The use of multiple tags to modify a single block of text is referred to as *nesting*.

## Heading Levels

Heading Levels are fundamental to HTML documents and help define overall document structure.

HTML currently specifies six levels of headings:

- <H1> (the largest)
- <H2>
- <H3>
- <H4>
- <H5>
- <H6> (the smallest)

Heading Level text is always formatted in bold, with white space inserted *before* and *after* the heading text. Additional formatting tags for paragraph breaks or line breaks are *not* recommended, and may cause problems when editing HTML script in the future.

The tags <H1> through <H6> are non-empty tag sets.



Heading Level tags do not specify the *absolute* font size used by browsers to display Heading Level text. Instead, Heading Level tags collectively represent a *relative* text sizing scale.

### Exercise 2-3: Using Heading Level Tags

1. Switch applications to your text editor.
2. Add the bold script (as shown below) to the text on your screen:

**<H1>Heading Level 1</H1>**

**<H2>Heading Level 2</H2>**

**<H3>Heading Level 3</H3>**

**<H4>Heading Level 4</H4>**

**<H5>Heading Level 5</H5>**

**<H6>Heading Level 6</H6>**

3. Resave the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 2-5. They should appear nearly identical. If they are not identical, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

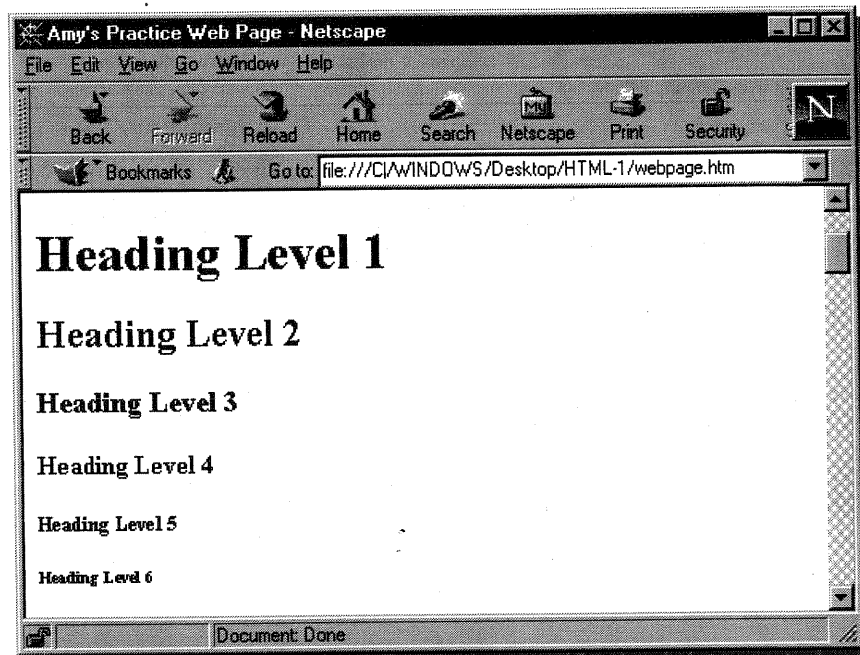


Figure 2-5: Text formatted with Heading Levels <H1> through <H6>

## Bold <B>, Italic <I>, & Underline <U> Tags

Three of the most popular text formatting tags are the Bold tag, <B>, the Italic tag, <I>, and the Underline tag, <U>.

- All of these tags are non-empty tag sets.
- Bold formatting can also be applied using the <STRONG> tag.
- Italic formatting can also be applied using the <EM> (emphasis) tag.

## Superscript <SUP> & Subscript <SUB> Tags

The Superscript tag, <SUP>, and the Subscript tag, <SUB>, were added to the HTML tag family in the 3.2 Specification.

- Both the <SUP> tag and the <SUB> tag allow text blocks to be formatted with more advanced text formatting attributes. Prior to Specification 3.2, such formatting was possible only with conventional word processing or desktop publishing applications.
- These tags are valuable in more sophisticated HTML documents, such as those containing equations, formulas, and footnotes.
- Both the <SUP> tag and the <SUB> tag are non-empty tag sets.

## Teletype Font Tag <TT>

The Teletype tag, <TT>, is a new addition to the HTML tag family.

- The <TT> tag instructs the browser to display body text in a monospaced (sometimes called “fixed” or “fixed width”) font.
- By default, browsers display body text in a pre-defined proportional (sometimes called “variable width”) font (*Times New Roman* in both Navigator/Communicator and IE). The default proportional font and monospaced font are user-definable in both Navigator and IE.
- Navigator and IE by default display monospaced text in the *Courier New* font.
- The <TT> tag is a non-empty tag set.

### Exercise 2-4: Adding Text Styles

1. Switch applications to your text editor.
2. Add the following script, as shown in bold, to your HTML document:

```
This is an example of plain text (no formatting) <P>
<B>This is bold text</B><P>
<I>This is italic text</I><P>
<B><I>This is bold and italic text</I></B><P>
<U>This is underlined text</U><P>
<B><U>This is bold and underlined text</U></B><P>
This is <SUP>superscript</SUP> text<P>
This is <SUB>subscript</SUB> text<P>
This is <TT>monospaced font</TT> text<P>
```

3. Save the HTML document.
4. Switch applications to your Web browser and reload the Web page.
5. Compare the screen that is displayed in your Web browser with Figure 2-6. If they do not appear nearly identical, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

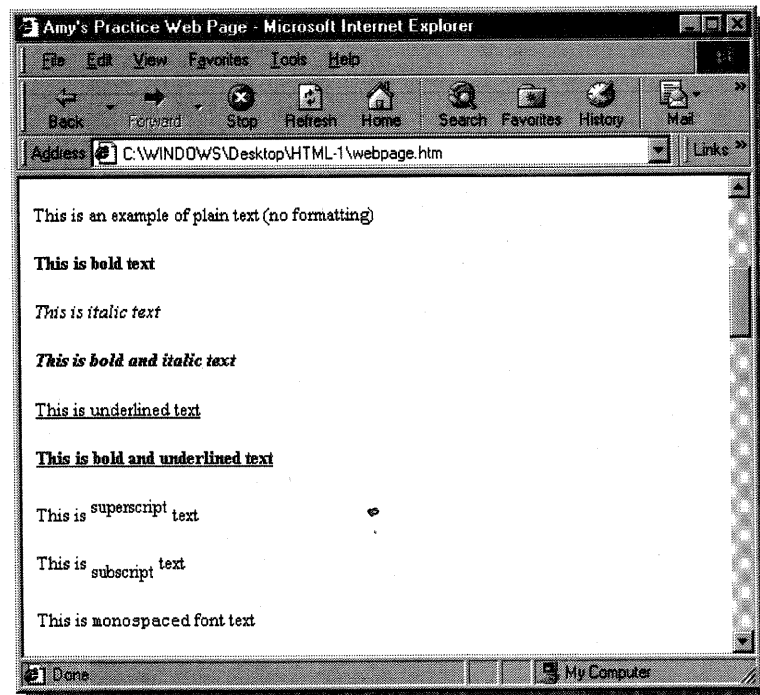


Figure 2-6: Text formatting tag effects

## Layout Tags

Layout tags add “white space” to a Web page and affect the structure, spacing, or layout of a Web page. Layout tags give an HTML document the equivalent of soft returns and hard returns in word processing documents.

Layout tags are useful for:

- creating a user-friendly, eye-pleasing design and layout for Web pages
- breaking Web page text and overall pages into logical sections that convey significance and meaning to a Web user

### Break Tag <BR>

The Break tag, <BR>, inserts a line break immediately following the <BR> tag, forcing text to the next line and justifying it to the left.

The <BR> tag is an empty tag.

### Paragraph Tag <P>

The Paragraph tag, <P>, is used to mark the beginning of a new paragraph or block of text. Text immediately following the <P> tag is forced to the next line and left justified.

The <P> tag is an empty tag.

The difference between the <BR> and <P> tags is that the <P> tag inserts a line of white space before and after the line of text containing the <P> tag.



“I think there are certainly going to be lots of debates about the Internet. My hunch is that the First Amendment rights are going to prevail, and that in fact this is an astonishingly free country and pretty much intends to remain that way, and the Internet will just be one more expression of our freedom.”

— *Newt Gingrich, Speaker of the U.S. House of Representatives, 1995*

### Exercise 2-5: Inserting Line Breaks

1. Switch applications to your text editor.
2. Add the following script, as shown in bold, to your HTML document:

**<H3>Without the Break tag</H3>**

This is an example of standard text displayed within the body of an HTML document

without a break tag (but with a break in the text).

**<H3>With the Break tag</H3>**

This is an example of standard text  
HTML document with a break tag.

3. Save the HTML document.
4. Switch applications to your Web browser and reload the Web page.
5. Compare the screen that is displayed in your Web browser with Figure 2-7. If this is not nearly identical, repeat the steps of this exercise.

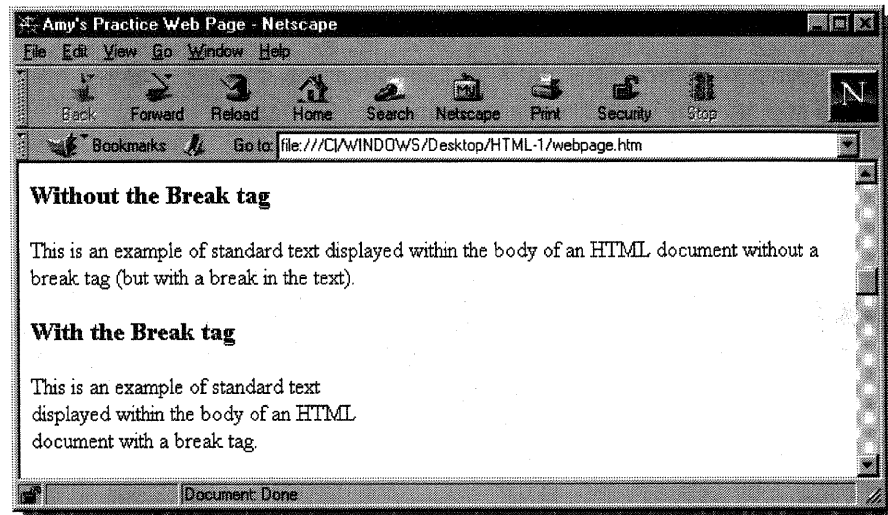


Figure 2-7: Line break inserted with the **<BR>** tag

## Exercise 2-6: Inserting Paragraph Breaks

1. Switch applications to your text editor.
2. Add the following script, as shown in bold, to your HTML document:

**<H3>Without the Paragraph tag</H3>**

Unlike in word processing documents, carriage returns and line breaks in HTML files are ignored. Text can only be broken using a Paragraph tag or Break tag.

**<H3>With the Paragraph tag</H3>**

Unlike in word processing documents, **<P>**carriage returns and line breaks in HTML files are ignored. Text can only**<P>** be broken using a Paragraph tag or Break tag. **<P>**

3. Save the HTML document.
4. Switch applications to your Web browser and reload the Web page.
5. Compare the screen that is displayed in your Web browser with Figure 2-8. If they are not nearly identical, repeat the steps of this exercise.

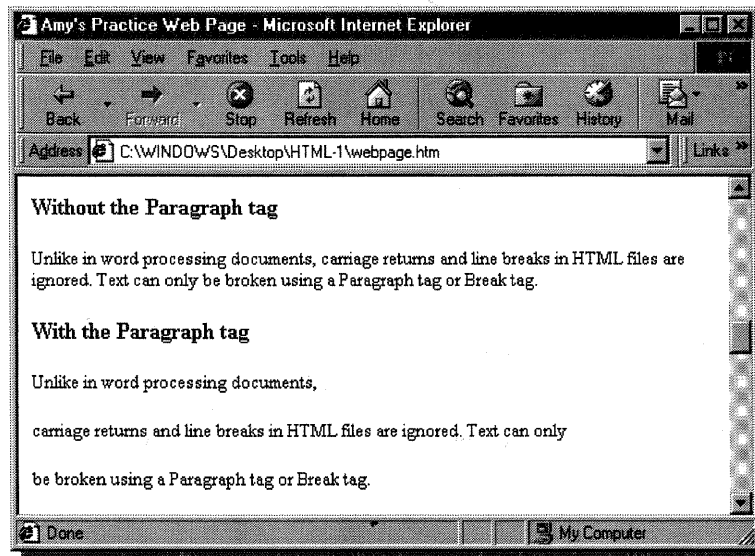


Figure 2-8: Paragraph break inserted with the <P> tag

## Preformatted Tag <PRE>

The Preformatted tag, <PRE>, instructs the Web browser to display text exactly as it is typed in the HTML document, preserving the spacing between characters and overall formatting of the text. This tag is useful for presenting tabular data (rows and columns) quickly and easily (without creating an HTML table). The font used with the <PRE> tag is monospaced and appears different from the proportional font used to display body text.<sup>11</sup>

The <PRE> tag is a non-empty tag set.

### Exercise 2-7: Preformatting Text

1. Switch applications to your text editor.
2. Add the following script, as shown in bold, to your HTML document:

**<H3>Without the Preformatted Tag</H3>**

	Ohio	Virginia	Texas	Georgia
1996	87	77	43	102
1997	41	59	92	116

**<H3>With the Preformatted Tag</H3>**

**<PRE>**

	Ohio	Virginia	Texas	Georgia
1996	87	77	43	102
1997	41	59	92	116

**</PRE>**

3. Save the HTML document.
4. Switch applications to your Web browser and reload the Web page.

---

<sup>11</sup> Web browsers have a default monospaced and proportional font used to display preformatted text. Most browsers allow you to customize fonts via a preferences dialog box.



5. Compare the screen that is displayed in your Web browser with Figure 2-9. If they are not nearly identical, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

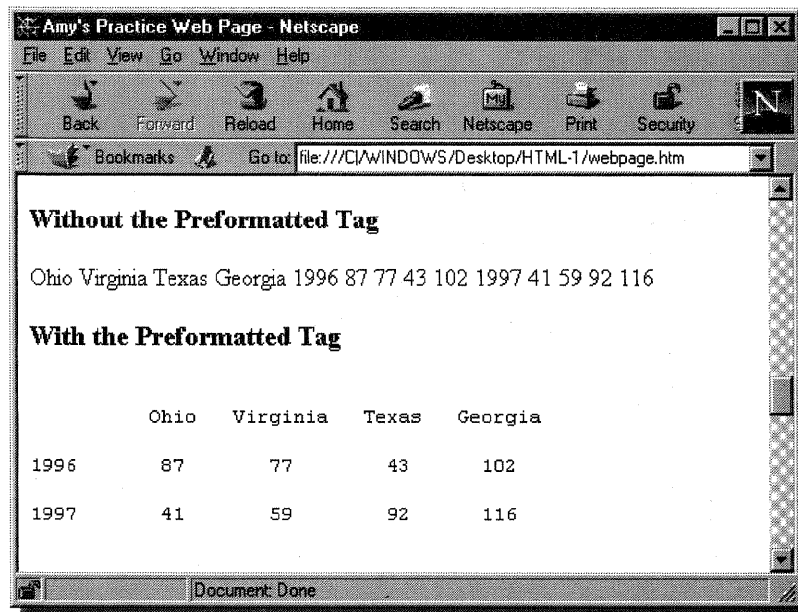


Figure 2-9: Preformatted text created with the <PRE> tag

## Block Quote Tag <BLOCKQUOTE>

The Block Quote tag, <BLOCKQUOTE>, is useful for indenting blocks of text, and is commonly used for quotes and citations. This tag indents both the left and right margins.

### Exercise 2-8: Indenting Text (or Creating Outquote Text)

1. Switch applications to your text editor.
2. Add the bold script (as shown below) to the text on your screen:

```
<H2>Without the Blockquote tag</H2>
```

This is an example of standard body text. The text extends all the way to the left margin and all the way to the right margin.

```
<H2>With the Blockquote tag</H2>
```

```
<BLOCKQUOTE>
```

This is an example of standard body text with the Blockquote tag. Notice how the text is indented on both the left and the right.

```
</BLOCKQUOTE>
```

3. Save the HTML document.
4. Switch applications to your Web browser and reload the Web page.
5. Compare the screen that is displayed in your Web browser with Figure 2-10. If they do not appear nearly identical, repeat the steps of this exercise.

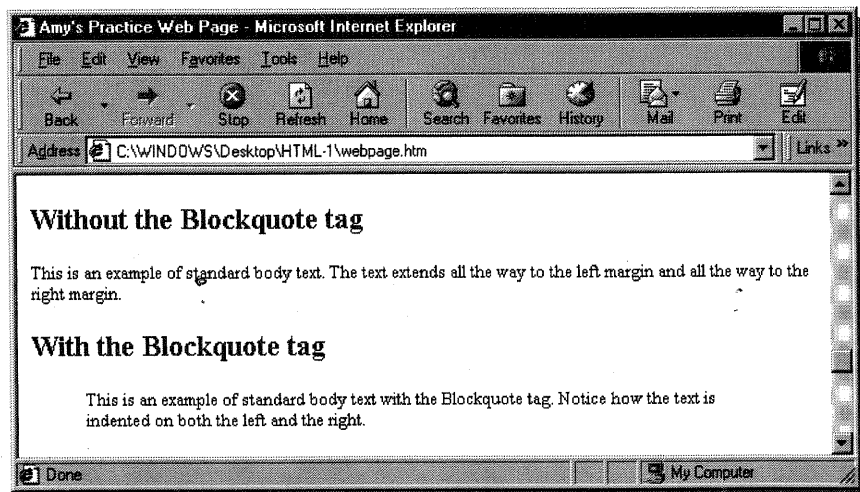


Figure 2-10: Text indented using the <BLOCKQUOTE> tag

## Logical Tags

Logical tags are not directly interpreted and displayed in the user's browser. Logical tags are used in HTML to create a wide range of effects and HTML document characteristics. One of the most common logical tags is the Comment tag, `<!-->`.

### Comment Tag `<!-->`

The Comment tag allows you to place text that you do not wish to have appear in the user's browser in an HTML document. The tag instructs the browser to not display comment text in the browser. The Comment tag is an empty tag.

The Comment tag has an unusual syntax. After the opening wicket is: 1) the exclamation character, which is followed immediately by 2) a dash<sup>12</sup>, and then 3) a horizontal space. Any comment you want included in your HTML document is typed next. This text may be of any length or case. A horizontal space follows the comment text, followed by a second dash, and the closing wicket.

### Exercise 2-9: Commenting HTML Script

1. Switch applications to your text editor.
2. Type the following script:

```
<!-- This Web page was last updated on [today's date] by [your  
name] of [your organization] -->
```

3. Save the revised HTML document.
4. Switch applications to your Web browser and reload the Web page.
5. You should see no difference in the Web page after the Comment tag and comment text were added. If this tag or its accompanying text are displayed in the Web browser, a mistake has been made, and you should check your HTML script against Step 2.



HTML comment text is sometimes called *annotation text* or *remark text*.

<sup>12</sup> Grammatically speaking, a dash is created by typing two hyphens.

## Lists

Lists are categorized as layout tags and are used to structure information so it may be more easily read and understood. There are two types of lists available in HTML:

1. unordered lists
2. ordered lists

### Unordered Lists

The first type of list is an unordered list, commonly referred to as a “bullet” list. Each item in an unordered list is indented and preceded by a bullet. The Unordered List tag, `<UL>`, is used for unordered lists. The individual items in either an unordered or ordered list are preceded by the List Item tag, `<LI>`.

- The `<UL>` tag is a non-empty tag set;
- `<LI>` is an empty tag.

### Ordered Lists

The second type of list is an ordered list, commonly referred to as a “numbered” list. An ordered list is identical to an unordered list with the exception that the items in the list are preceded by ordered, or “ranked,” numbers instead of bullets. The Ordered List tag, `<OL>`, is used to create ordered lists. The individual items in an ordered list are also preceded by the `<LI>` tag.

- The `<OL>` tag is a non-empty tag set;
- `<LI>` is an empty tag.



“Don’t try to attract users to your site by bragging about your use of the latest Web technology. You may attract a few nerds, but mainstream users will care more about useful content and your ability to offer good customer service.”

— Jakob Nielsen, Ph.D., *Web user advocate and author*, 1999

## Exercise 2-10: Creating Bullet and Numbered Lists

1. Switch applications to your text editor.
2. Add the following script, as shown in bold, to your HTML document:

```
<H3>The Biggest States</H3>
```

```
<UL>
```

```
<LI>Alaska
```

```
<LI>California
```

```
<LI>Nevada
```

```
<LI>Texas
```

```
</UL>
```

```
<H3>Morning Routine</H3>
```

```
<OL>
```

```
<LI>Turn off alarm
```

```
<LI>Make coffee
```

```
<LI>Take shower
```

```
<LI>Shave
```

```
<LI>Drink all of coffee
```

```
<LI>Brush teeth
```

```
<LI>Drive to the office
```

```
</OL>
```

3. Save the HTML document.
4. Switch applications to your Web browser and reload the Web page.

5. Compare the screen that is displayed in your Web browser with Figure 2-11. If they are not nearly identical, repeat the steps of this exercise.

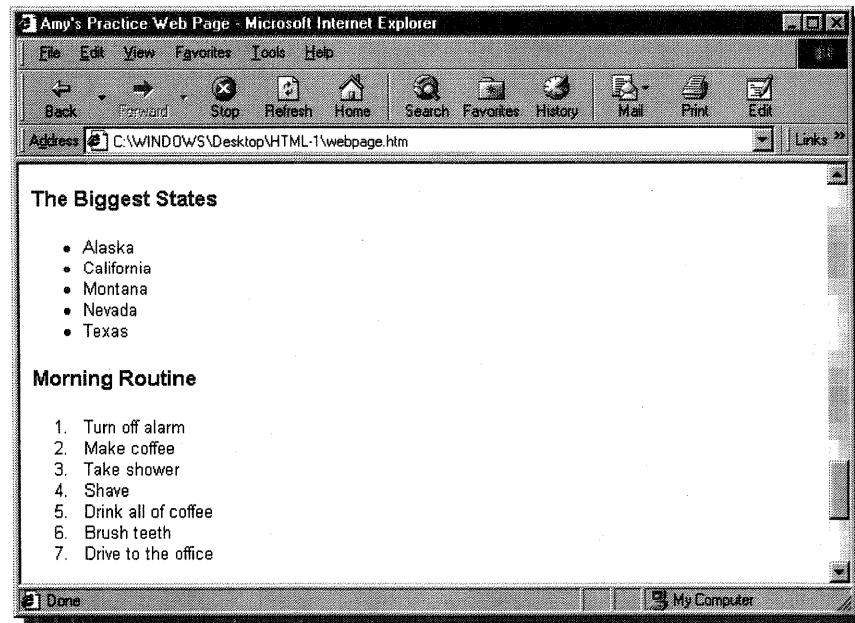


Figure 2-11: Bullet list and numbered list created with the <UL> and <OL> tags



It is not necessary to insert a <BR> tag when using the <LI> tag. The <LI> tag by default moves the next list item to the following line.

Use of a <P> tag following an <LI> tag will create additional white space following the list item text.

## Lesson 2 Summary

- ▶ HTML tags are the codes that provide instructions to a Web browser regarding the format, layout, content, and overall appearance of an HTML document. Following the tags' instructions, the browser translates the HTML document into a Web page.
- ▶ The two categories of HTML tags are empty and non-empty. Most HTML tags are non-empty.
- ▶ An HTML document Head section is defined using the <HEAD> tag; the body section is created with the <BODY> tag. Both <HEAD> and <BODY> are non-empty tags.
- ▶ Text formatting tags include the Heading Level tags, <H1>...<H6>, the Bold tag, <B>, the Italic tag, <I>, the Underline tag, <U>, the Superscript tag, <SUP>, the Subscript tag, <SUB>, and the Teletype Font tag, <TT>. All text formatting tags are non-empty tags.
- ▶ Headings levels are useful for adding structure to a Web page. There are six heading levels, all of which are non-empty tags. Heading Level 1, <H1>, offers the largest font. Heading Level 6, <H6>, is the smallest font.
- ▶ Layout tags allow you to add "white space" to your Web pages. Layout tags include the Break tag, <BR>, and the Paragraph tag, <P>. <BR> adds what in word processing jargon is called a soft return, or line break. <P> adds what is also called a hard return, or paragraph break. Both of these tags are empty tags.
- ▶ The Preformatted tag, <PRE>, allows you to instruct a browser to temporarily turn off interpretation of your HTML document. Thus, you can use no tags or character references between opening and closing <PRE> tags (unless you desire to display the uninterpreted tags to the user in the Web browser). <PRE> is a non-empty tag.
- ▶ The Block Quote tag, <BLOCKQUOTE>, is a method by which a text block can be indented on both the left and right. <BLOCKQUOTE> is a non-empty tag.
- ▶ The Comment tag, <!-->, allows you to "comment out" text in a Web page so that it will not be displayed to a user in the Web browser. Comment text is also called "annotated text" or "remark text."
- ▶ There are two types of lists: ordered and unordered. Ordered lists (also called numbered lists) are created using the <OL> tag in conjunction with the <LI> tag. Unordered lists (also called bullet lists) are created using the <UL> tag, also in conjunction with the <LI> tag.